REMARKS

Claims 1-5, 8-40 and 42-47 are pending in this application of which claims 1, 21, 28 and 37 are independent. Claims 1, 21, 28 and 37 have been amended. Support for the amendments can be found at page 5, lines 20-25 and Figure 1 of the Present Application. Claims 6, 7 and 41 have been previously canceled without prejudice. Applicants respectfully submit that all of the pending claims are in condition for allowance. Applicants respectfully request reconsideration of the outstanding rejections and allowance of all pending claims in view of the reasons set forth below.

I. Rejection of Claims 1-3, 5, 21-23, 26-33, 36-40 and 44-47 under 35 U.S.C. § 103(a)

Claims 1-3, 5, 21-23, 26-33, 36-40 and 44-47 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. PG Publication No. 2001/0025292 to Denk et al. (hereafter "Denk") in view of "Digital Filter Solutions" (hereafter "DSF") (Office Action, p. 2, § 5). Applicants respectfully traverse this rejection.

A. Claim 1

Amended claim 1 recites:

> "In a computer system, a method for implementing and using a filter object which generates an output in response to an input of the filter object, wherein the output of the filter object depends on the input and a state of the filter object, wherein the state of the filter object includes a minimum amount of information necessary to determine the output of the filter object, the method comprising:
>
> providing the filter object, the filter object being represented by equations performed to generate the output in response to the input of the filter object, the equations including the state of the filter object; and
>
> **retaining the state of the filter object**;
>
> wherein the filter object is implemented and used in a first dynamically typed text-based programming environment, wherein **the output of the filter object is determined based on a present input of the filter object and a present state of the filter object**, and wherein the state of the filter object contains information about a previous input of the filter object."

Denk and DSF, alone or any reasonable combination do not disclose or suggest **retaining the state of the filter object** and that **the output of the filter object is determined based on a present input of the filter object and a present state of the filter object**.

Denk concerns rounding techniques to reduce the precision of a signal [0029]. More specifically, Denk discusses methods and apparatus that reduce the precision of an input signal value having a first precision to an output signal value having a second precision. The second precision is lesser than the first precision to reduce a precision reduction error signal [0029]. However, Denk contains no discussion of a state of a filter object. As such, Denk is silent about **retaining the state of the filter object**. The Examiner indicates that Denk teaches this claim element in paragraph [0070] (Office Action, page 3). The section cited by the Examiner is generally directed to using the MATLAB® technical computing environment to model signal processing methods ([0070] and [0071]). However, neither in this section, or in the reminder of the reference, does Denk disclose or suggest **retaining the state of the filter object**, as recited in claim 1.

Moreover, the Examiner correctly notes that Denk does not disclose "the output of the filter object is determined based on a present input of the filter object and a previous input of the filter object" (Office Action, page 3). Denk further does not disclose or suggest that the output of the filter object is determined based on a present input of the filter object and **a present state of the filter object**, as recited in amended claim 1. The Examiner relies on DSF to find this claim element. However, DSF fails at curing the shortcomings of Denk with respect to at least this claim element.

DSF discusses deriving digital filters from Z transforms (page 9). The Z-transform converts a discrete time-domain signal into a frequency-domain representation. In Z transforms, Z refers to inverse past value of an element of the digital filter. Hence Z^{-1} refers to one past value of an element of the filter and Z^{-2} refers to two past values of the element (page 9). By definition, the Z transform depends from inverse past values of elements of a digital filter rather than **a present state of the filter object**, as recited in claim 1. DSF, alone or in any reasonable combination with Denk, do not disclose or suggest that the output of the filter object is determined based on a present input of the filter object and **a present state of the filter object**, as recited in amended claim 1.

The combination of Denk and DSF fails to disclose or suggest each and every element of amended claim 1. Specifically, the combination of Denk and DSF fails to disclose or suggest **retaining the state of the filter object** and that the output of the filter object is determined based on a present input of the filter object and **a previous state of the filter object**, as recited in amended claim 1. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claim 1 under 35 U.S.C. § 103(a).

B. Claims 2, 3, 5 and 44

Claims 2, 3, 5 and 44 depend from claim 1 and, as such, incorporate each and every element of claim 1. In light of the arguments presented above regarding claim 1, Denk and DSF, alone or in any reasonable combination do not disclose or suggest each and every element of claims 2, 3, 5 and 44. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 2, 3, 5 and 44 under 35 U.S.C. § 103(a).

C. Claims 21-23, 26-27 and 45

Amended claim 21 recites:

"In a computer-implemented system, a method for generating an output of the system in response to an input of the system, the method comprising the steps of:
specifying a state of the system that includes a minimum amount of information that is necessary to determine the output of the system;
retaining the state of the system in a memory;
providing to the system the state of the system retained in the memory; and
determining the output of the system depending on the input and a state of the system;
wherein the method is implemented in a dynamically typed text-based programming environment, wherein **the output of the system determined based on a present input of the system and a present state of the system**, and
wherein the state of the system contains information about a previous input of the system."

In light of the arguments presented above regarding claim 1, Denk and DSF, alone or in any reasonable combination, do not disclose or suggest **retaining the state of the system in a memory** and that the output of the system is determined based on a present input of the system and **a present state of the system**, as recited in claim 21.

Claims 22, 23, 26-27 and 45 depend from claim 21 and, as such, incorporate each and every element of claim 21. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 21-23, 26-27 and 45 under 35 U.S.C. § 103(a).

D. Claims 28-33, 36 and 46

Amended claim 28 recites **retaining the state of the object** and that the output of the object is determined based on a present input of the object and **a present state of the object**.

In light of the arguments presented above, Denk and DSF, alone or in any reasonable combination do not disclose or suggest that the output of the object is determined based on a present input of the object and **a present state of the object**, as recited in claim 28.

Claims 29-33, 35 and 46 depend from claim 28 and, as such, incorporate each and every element of claim 28. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 28-33, 36 and 46 under 35 U.S.C. § 103(a).

E. Claims 37-40 and 47

Amended claim 37 recites similar elements to claim 1. Specifically amended claim 37 recites **retaining the state of the filter object** and that the output of the filter object is determined based on a present input of the filter object and **a present state of the filter object**.

In light of the arguments presented above regarding claim 1, Denk and DSF, alone or in any reasonable combination do not disclose or suggest **retaining the state of the filter object** and that the output of the filter object is determined based on a present input of the filter object and **a present state of the filter object**, as recited in claim 37.

Claims 38-40 and 47 depend from claim 37 and, as such, incorporate each and every element of claim 37. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 37-40 and 47 under 35 U.S.C. § 103(a).

II. Rejection of Claims 4, 24, 25, 34, 42 and 43 under 35 U.S.C. § 103(a)

Claims 4, 24, 25, 34, 42 and 43 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Denk in view of DSF and further in view of U.S. Patent No. 5,677,951 to Gay (hereafter "Gay") (Office Action, p. 13, § 6). Applicants respectfully traverse this rejection.

Claim 4 depends from claim 1; claims 24-25 depend from claim 21; claim 34 depends from claim 28; claims 42 and 43 depend from claim 37. Dependent claims incorporate each and every element of the independent claim upon which they depend. In light of the arguments presented above, Denk and DSF do not disclose each and every element of claims 1, 21, 28 and 37. Gay fails at curing the shortcomings of Denk and DSF.

Gay discusses an adaptive filtering technique applicable to acoustic echo cancellation (Col. 1, lines 6-8). The cited sections of Gay on page 13 of the Office Action discuss a method of use of an adaptive filter (Col. 3, lines 5-26). The Examiner specifically points to the section where Gay discusses a controller providing an *audio* restart signal to the process extension unit of the adaptive filter (Col. 3, lines 9-13). Nowhere in the reference does Gay disclose or suggest retaining the state of the filter object/system and that the output of the filter object/system is determined based on a present input of the filter object/system and a present state of the filter object/system.

The combination of Denk, DSF and Gay does not disclose or suggest each and every element of claims 4, 24, 25, 34, 42 and 43. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 4, 24, 25, 34, 42 and 43 under 35 U.S.C. § 103(a).

III. Rejection of Claims 8-20 under 35 U.S.C. § 103(a)

Claims 8-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Denk in view of DSF and further in view of "AutoCode Solutions" (hereafter "AutoCode") (Office Action, p. 15, § 7). Applicants respectfully traverse this rejection.

Claims 8-20 depend from claim 1 and, as such, incorporate each and every element of claim 1. In light of the arguments presented above regarding claim 1, Denk and DSF, alone or in any reasonable combination do not disclose or suggest each and every element of claim 1.

Specifically, Denk and DSF, alone or in any reasonable combination, do not disclose or suggest **retaining the state of the filter object** and that the output of the filter object is determined based on a present input of the filter object and **a present state of the filter object**. AutoCode fails at curing the shortcomings of Denk and DSF with regard to at least these claim elements.

AutoCode discusses the capability to generate C code for a digital filter in the same form and precision, up to 16 digits, that is specified in a Z transform (AutoCode, "General Information"). The code is compatible with any standard C or C++ compiler (AutoCode, "General Information"). The filter may be initialized at any point in time to any value, except that pass band filters only initialize to zero (AutoCode, "General Information"). The filter starts with an initial value of zero at the first call (AutoCode, "General Information").

However, AutoCode is silent about state of a filter. Specifically, AutoCode does not disclose or suggest **retaining the state of the filter object** and that the output of the filter object is determined based on a present input of the filter object and **a present state of the filter object**, as recited in claim 1, hence claims 8-20.

The combination of Denk, DSF and AutoCode does not disclose or suggest each and every element of claims 8-20. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claims 8-20 under 35 U.S.C. § 103(a).

IV. Rejection of Claim 35 under 35 U.S.C. § 103(a)

Claim 35 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Denk in view of DSF and further in view of U.S. PG Publication No. 2002/0147554 to Pickerd (hereafter "Pickerd") (Office Action, p. 23, § 8). Applicants respectfully traverse this rejection.

Claim 35 depends from claim 28 and, as such, incorporates each and every element of claim 28. In light of the arguments presented above with regard to claim 28, the combination of Denk and DSF does not disclose each and every element of claim 28. Pickerd fails at curing the shortcomings of Denk and DSF.

Pickerd concerns test and measurement instruments, such as digital oscilloscopes [0002]. Pickerd discusses a streaming distributed oscilloscope architecture that would reduce the dead time and increase the probability of detecting dead times [0007]. As such, Pickerd is generally directed to hardware implementations. In Pickerd, there is no discussion of a **retaining the state of the object** and that the output of the object is determined based on a present input of the object and **a present state of the object** as recited in claim 28.

The combination of Denk, DSF and Pickerd does not disclose or suggest each and every element of claim 35. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of claim 35 under 35 U.S.C. § 103(a).

CONCLUSION

In view of the above comments, Applicants believe the pending application is in condition for allowance and urge the Examiner to pass the claims to allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicants attorney at (617) 227-7400.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. MWS-030RCE. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. § 1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: February 13, 2008

Respectfully submitted,

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